TMF

January 1989

THE MAC FLYER - For Greater Safety in MAC Air Operations

60th MILITARY AIRLIFT WING

All About Travis AFB . . . page 16

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23 AF COMMANDER . . . ON SAFETY

There are two fundamental principles I hold most sacred in performing air operations: preserving human life and accomplishing our mission in support of national objectives. Everything else we do is subordinate to and in support of these basic tenets. Contrary to the old saw that safety and ops are in some sort of competition, these principles are mutually supportive—*safe* air operations are *effective* air operations, and vice versa. You do little for your nation, in fact you do the enemy's job, when you destroy your crew/aircraft in a valiant attempt to pull off a poorly planned operation. I'd rather have you back for another try.

And it's high time we dispose of another myth as well. Safe air operations do *not* mean eliminating all risk. Perhaps in some utopian world it might be so, but certainly not in our business. Our requirements are increasingly difficult, our aircraft are increasingly aged, and our resources are increasingly limited. So the commander who fills the square after a night low-level formation mission briefing with that tired cliche "Safety is Paramount," missed the point. If you listen very closely you'll hear his audience murmur, almost in unison, "If safety is paramount, why are we going?"

No. In our profession the risks are all too real, even in the best of times. It's far better we recognize them up front and deal with them as best we can. We're in the business of risk management, not risk elimination.

With this concept of risk management in mind, I've developed an air operations policy based on a few key ideas:

—**Communicate.** The free and open expression of your concerns and suggestions is essential. Communication, just like loyalty to the team, is necessary—up, down, and sideways.

—**Know your mission.** You can't make accurate judgments about risks if you don't fully understand what you're being asked to do. This applies to all levels—crew chiefs to commanders, it's obvious, but it often falls victim to an "it'll work out okay" philosophy. That is unacceptable. Even launching off alert requires preplanning.

—**Know your people.** Commanders must know their people's strengths and weaknesses, as individuals. It's the only way to pick the right person for the job. Pilots must know their crew's limitations and, even harder, their own. The only way to know your people is to be with them—at work or at play. I only select commanders/ops officers in 23 AF who have their Ph.D. in "flying," i.e., past or present instructors or flight examiners. That way I know they (1) know their people, (2) know their limitations, and (3) know the challenges of the mission.

—**Your flyers are your planners.** Never try to plug someone else's plan into your operation. Every aspect of air operations should be planned by the units involved and reviewed by unit commanders or their representatives.

—**Stick to established tactics.** We pride ourselves on flexibility. Innovation is one of our strengths, but the cockpit is not the place for it. Follow established guidelines for developing and introducing new tactics. If existing procedures aren't adequate for your mission, fix 'em, don't ignore 'em.

—**Use your chain of command.** Independence is another American tradition, but it must be tempered by the fact we're a military team. When inevitable conflicts arise during joint or intraservice operations, unit commanders, not aircrews, should resolve them. If that fails, elevate the problem through the proper chain of command. There are two corollaries that go with this one:

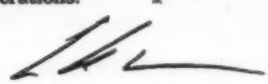
——**Know your chain of command.** Not as obvious as you might think. In these days of joint operations, changing opcom, dual-hatting, etc., things can get pretty confusing, particularly at the lower levels. Make sure you know who you're working for. The operational commander doing the tasking is, more and more frequently, coming from another command. Know the difference between opcom and command.

——**Trust your chain of command.** This is an upper-level issue. It's absolutely vital that aircrew believe their leaders will support them when they need help. Otherwise, all is lost. Actions speak louder than words on this one. We're not interested in diluting your authority, but we are interested in putting the strength and credibility of the entire command behind your decisions.

Maj. Gen. Robert B. Patterson

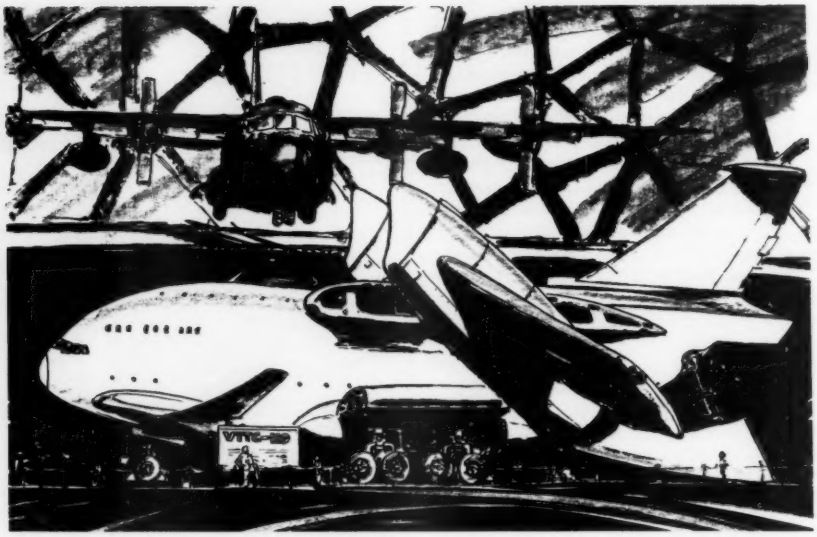
When you're dealing with risk management decisions in your conduct of air operations, remember, the operative phrase is "common sense." You'll always have to take some risks to accomplish the mission—your task is to rule out those which aren't necessary. If it doesn't look good, feel good, or smell good, it probably isn't. At that point, it's time to ask, "Why?" and if you don't get a good answer, it's time to say, "No." On this team, *all* players have the authority to call "time out," not just the team captain or coach.

I know these issues aren't always black and white; they can be the most difficult and complex decisions that many of us will ever be asked to make. But your leaders have voted in favor of your judgment by placing you in the position you now occupy. Whatever your crew position, you can justify their faith in you by being an active participant in the safety of your air operations. ★



Some Things Never Change

A simple question with complex answers.



By Capt. Philip A. Bossert, Jr.
18 MAS, McGuire AFB, New Jersey

It was a beautiful, cool day in Washington, with the last remnants of winter still reluctantly present among the barren trees and frost-covered streets. Small crowds lazily made their way up and down the mall, and sidewalk vendors made big sales in hot chocolate, tea, and coffee.

A perfect day for a trip to the Smithsonian, thought retired Lt. Col. Bob Hathaway as he walked his two grandchildren, Irene and Nick, up the steps of the crowded Air and Space Museum. Like many proud grandparents, he was excited about spending time with his grandchildren, and was eager to show them an enjoyable time.

A huge, brightly colored banner exclaiming "Celebrating 150 Years of Flight" waved gently in the breeze as they entered the main lobby. While ascending the lobby steps, a strange feeling came over him—a feeling that, although he had been here many times before, this visit was going to be just a little different.

Eight-year-old Nick pulled on his grandfather's sleeve and pleaded, "Can we first see the planes you flew?"

"Sure, we can Nick," his grandfather reassured. "We'll look at the shuttles and National Aerospace planes later."

"I want to see the Mars Lander, too," Irene shouted.

"We'll see that too, Irene," he said with a big smile.

Colonel Hathaway led his two young companions down several long, winding hallways. After a 15-minute walk they finally came to the military transport exhibits. This display hangar was huge, but still only half the size of the full scale mockups of the century series of U.S. orbital space stations. In the spacious room with its huge geodesic roof, dozens of planes were on display, including the C-124, C-118, C-130, C-5, C-17, C-25, and his favorite, the legendary VTTC-119.

They took their time wandering through the exhibits. Nick and Irene loved climbing into the cockpit of the ancient C-130 and watching the short movie in the C-141 describing its crucial roles in Vietnam, Grenada, the Persian Gulf crisis of '88, the evacuation of several embassies in the '90s, and its last big role, the Central American conflagration of '02.

While the kids wandered around, Bob Hathaway lost himself in more serious thoughts. He spent most of his time reading the plaques dedicating each plane to some distinguished unit or aircrew.

1988 MAC Flight Safety Writing Contest Honorable Mention

After having thoroughly examined the C-17, famous workhorse of the U.S. Transportation Command earlier this century, little Nick ran up and, out of the blue, asked, "Grandpa, what makes a good pilot?"

The simplicity of the question, with its complex answer, shocked Hathaway back from his deep thoughts. "You'll have to give me a little time to answer that, Nick. That's a pretty good question from someone your age!"

Almost immediately Irene hollered, "I'm hungry, I'm hungry!"

Using some of the quick thinking that saved him so many times during his 7,000-flying-hour, 20-year Air Force career, Colonel Hathaway suggested, "Well, why don't you two go over to the Galaxy restaurant and get a bite to eat while I sit here and think of a good reply to Nick's question."

After they both eagerly agreed, Hathaway gave them some lunch money and they rocketed off to one of the rear doors. Outside sat an old C-5, now converted to a 200-seat snack bar and gift shop.

When his grandchildren disappeared from sight, Colonel Hathaway slowly walked over to the huge VTTC-119 exhibit, once again lost in deep thought.

"Of all the questions Nick had to ask me, he chose the toughest one," he lamented softly, but his big smile showed he had learned the answer long ago.

As he sat down on a comfortable bench near the left winglet of the 600,000-lb VSTOL airlifter, memories of all his varied years of flying inundated his mind. But one mission stood out, the one that always stood out from the rest and taught him so many lessons about flying.

*****

He was a young captain, a VTTC-119 aircraft commander, commanding the leading airlifter of its day. They were to do a spectacular "flyby" at Yeager AFB for an Air Force anniversary celebration. At their predeparture briefing, he and his crew were all pumped up, ready to show themselves and their affectionately nicknamed "flying beast" to the estimated 15,000 visitors and VIPs. Even CINCTRANSCOM would be there.

They had practiced weeks for this, and everything seemed to be falling right into place, except, of course, the weather. A cold front had swept through the night before, leaving low clouds and mediocre visibility. The deck was now 600 ft with 2½ miles visibility; the weather shop was forecasting the same for the planned flyby. They needed 700-3. When Hathaway queried, or more like interrogated, the weather officer, they could only get a possibility it would be 700-3, but it wasn't a guarantee.

"Damn!" he shouted, "only 100-½ more and we'd be there!"

"It's close, Boss, but I think we should at least get airborne, double-check the weather, and make the decision then," suggested his overly eager copilot.

"That sounds real good to me, too," offered his defensive systems operator.

Hathaway paused and, with the look of impending decision making, stepped towards the front of the briefing room. There he glanced through the huge observation port at the flightline, the VIP stands, and static displays quickly filling with spectators.

We worked so hard and so long for this, he silently brooded. Maybe the weather will break, he thought. Several minutes later, young Captain Hathaway walked toward his eager crew and announced, "Well, since there is a chance we will have the weather, I suppose it wouldn't hurt to at least get airborne and then check it." At that point they had taken one step toward committing themselves to a decision they would later regret.

Forty-five minutes later they were orbiting the field at 1,500 ft, talking to Metro. The news did not please Captain Hathaway.

"Six hundred—two and a half, wind 10 knots," the forecaster impassively informed.

"Six hundred--two and a half, wind 10 knots," the forecaster impassively informed.

Beads of uncertainty quickly formed on Hathaway's forehead. The momemtum of the situation was quickly building, yet he didn't recognize it. His copilot interjected, "Boss, look, the ceiling might be higher by the stands."

"We'll make one big hit if we can pull this off," assured the voice from the defensive station.

"Do we have all the obstacle waypoints punched in?" Hathaway reluctantly asked.

"Yes sir," the copilot eagerly replied. "And here is the projected flight path and parameters."

On their main CRTs the flyby route blinked, with minimum heights and recommended airspeeds next to each point.

Damn! We're so close! We worked so hard for this, Captain

Hathaway thought. Then, on impulse, he got on the intercom and said, "Crew, I'm not exactly one hundred percent for this, but it looks like we'll pull this off safely, and unless anyone has any objections, we're going for it."

There were no objections, only encouraging remarks from the rest of his crew. Little did they know their eager copilot had forgotten to input the coordinates for one of

"At that point they had taken one step toward committing themselves to a decision they would later regret."

the dirigible displays. Their projected route did not show it.

Ten minutes later, with checklists completed and tower permission granted, Hathaway began smoothly maneuvering the VSTOL behemoth onto course. He skillfully moved his joystick controller, activating the fly-by-wire flight controls. The ailerons, externally blown wing flaps, and elevons moved quickly as electrical pulses, racing through miles of fiber optics, commanded dozens of control circuits. The huge, delta wing VTTC-119 was truly an impressive sight as it rolled onto its final track.

As he accelerated to 400 knots and lined up for his one and only pass, he grinned broadly in anticipation of the crowd's awe as the world's biggest VSTOL airlifter rocketed by, shaking the ground. For weeks Hathaway and his crew had dreamed of the excitement of this moment, and now it was finally here.

But suddenly, as the first spectator stand came into view, a huge shadow began filling the windscreen.

"Pull up, pull up!" screamed his terrified right seater.

Hathaway instinctively yanked back on his stick, almost breaking his wrist, and simultaneously smashed down on the vertical thrust controls. The shrill sound of the proximity warning horn thundered in the cockpit.

They barely missed the dirigible, but as they would later learn, their exhaust blackened its top.

In a violent imitation of a reverse split "S", the VTTC-119 arched up and backwards with its four 88,000-lb thrust engines shooting them over 10,000 ft in six seconds. The negative Gs were obvious as they floated in their straps. Moaning sounds reverberated over the intercom as the copilot braced himself for the sickening, nearly vertical climb.

"Are we in orbit yet, boss?" a humble defensive systems officer asked nervously.

Hathaway didn't answer. There was silence for the rest of the mission until after they landed. Thirty minutes later they walked into base ops, still all deathly quiet, thoughts of the possible consequences of their stupidity heavy on their minds. As they walked past the weather shop, the airfield manager ran up to them and, to their shock, congratulated them for a "stupendous" performance.

"You mean we're not grounded?" asked the copilot, hesitantly.

"For what? They loved it."

In the post-mission brief they discovered their mistake, and the copilot apologized profusely. They also learned the balloon was located at the end of their low pass, and just before they had climbed violently to avoid it, they had disappeared in a mass of scud. No one had noticed anything unusual, except of course ATC, who had quickly granted their frantic request for an "immediate and unrestricted climb."

*****

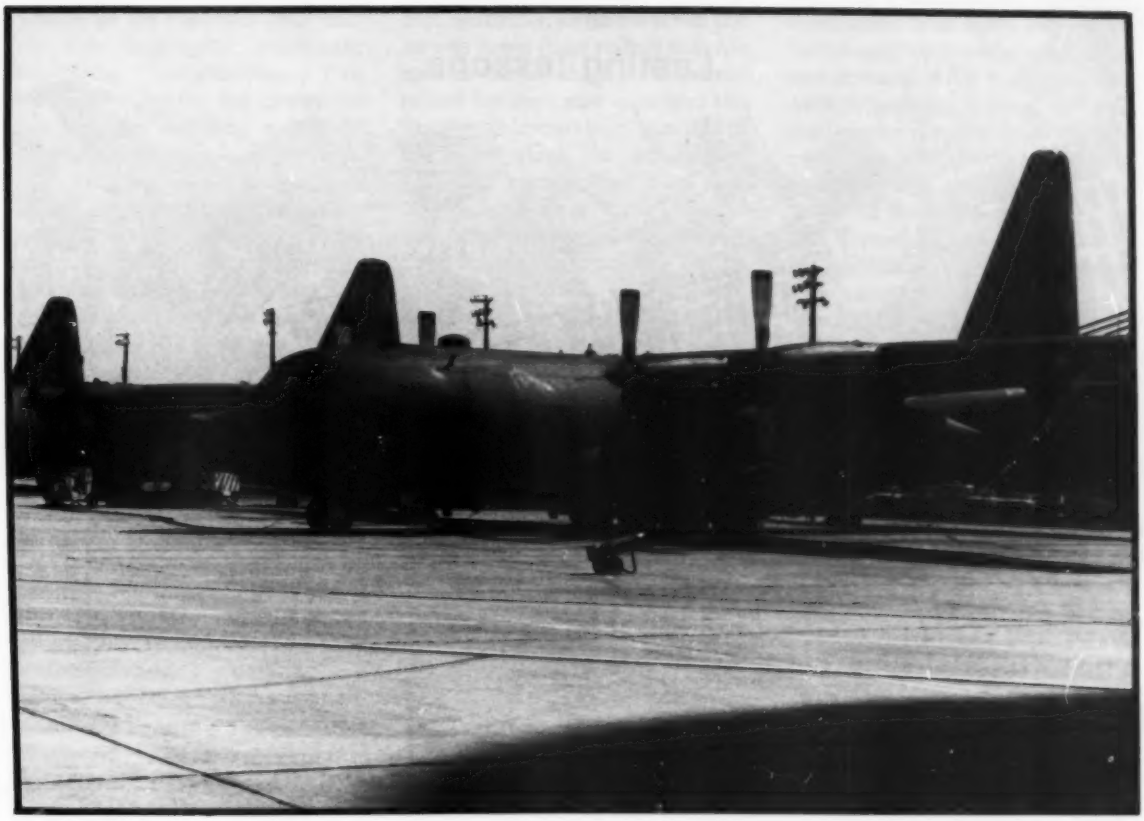
At the Smithsonian, the crowds were getting larger as the afternoon wore on. By the VTTC-119, Colonel Hathaway was brought back to reality as some unruly children sat down next to him. I bet they'll be copilots some day, he thought, smiling. As he got up and began walking towards *Fred's Place* (nickname of the Galaxy restaurant) Hathaway knew exactly how he was going to answer little Nick's question about what makes a good pilot.

Besides knowledge, experience, and proficiency—good old fashioned common sense and maturity, with the last underlined, would be his answer to Nick.

And he even has one hell of a war story to prove it! ✈

Capt. Philip A. Bossert, Jr, a 1982 Air Force Academy graduate, earned his wings at Reese AFB, Texas in 1983; served as a CT-39 AC, and a C-21 IP at Langley AFB, Virginia. He is currently a C-141 pilot at McGuire AFB, New Jersey.

Excellence in Airmanship



Capt. Jeffrey S. Spencer and Crew, 773 TAS, Dyess AFB, Texas, were one and one-half-hours into an Atlantic crossing en route to Spain. Their C-130H was at FL 180 when they experienced a near-catastrophic flight control malfunction.

The aircraft didn't respond to autopilot inputs and, after disengaging the autopilot, Captain Spencer found the ailerons locked tight. He maneuvered the aircraft using rudder and differential power. Upon investigation, the FE, SSgt. Roy D. Dowdy, discovered the aileron hydraulic boost pack dripping fluid. Apparently, the boost pack actuator was locking the aileron controls. The copilot, Capt. David R. Hein, and navigator, 1st Lt. Robert G. Sianni, Jr., coordinated an emergency diversion to RAF Mildenhall. Realizing conditions would not improve, Captain Spencer established a block altitude for a controllability check, and found the aircraft responded best with 40 percent flaps using "no-flap" speeds. He also had more control when in a left turn.

Weather at Mildenhall was standard—less than 1,000-ft ceiling with winds 30 degrees off runway heading up to 25 knots.

After considering all options, Captain Spencer flew a textbook ILS and landed safely using rudder, elevator, and differential power for primary flight control. The outstanding efforts of Captain Spencer and crew saved lives and aircraft. "Well done" from the staff at *TMF*. ★

Past Adventures . . .

Lasting lessons.

Mac MacKenzie reclined on a sand dune and watched the white puffies float wistfully across the seascape. Taking full advantage of this 3-day pass wasn't such a bad idea, thought Mac. After all, the winner of the Company Grade Officer of the Quarter award is rightfully entitled to the perks that go with the award.

The setting, and something about the cool breeze dusting off the virgin sand, prompted Mac to reminisce about another day, on another beach, nearly a decade ago. As swaying coconut palms gently beckoned new clouds into view, Captain MacKenzie's thoughts drifted back to those earlier days of special helicopter operations by the sea coast . . . .

* * * * * * * * * * *

This unit deployment, billed as a "civic action mobilization," was another push to advance the cause of modern civilization in underdeveloped foreign lands. They were helping build some cattle disease control outposts in the mountainous area near the border between Colombia and Panama. A few lucky crews had ferried unit helos to the seaside FOL near Tole, Colombia. Now it was time to rotate crewmembers and give a few of the younger rotor heads an opportunity to participate in the project.

Still a second lieutenant, Mac impatiently awaited his turn to board the C-123 "Provider." He'd never flown in one of these relics, so he anticipated a new adventure. One of the unit pilots told him the '123 had originally been designed as a WWII-vintage glider but, with a pair of heavy recip engines added, lacked a sufficient safety margin for fully loaded takeoffs. The engineers had resolved the deficiency with additional boost provided by a pair of small AVGAS-burning jet engines, hung in pods outboard of the recips. Thus, '123 pilots made a habit of adding a postscript to their "gear down" call with, "Two turnin' and two burnin'." (According to legend, that once triggered a tower operator to respond by hitting the crash alarm bells.)

The loadmaster motioned Lieutenant MacKenzie toward the narrow bench of fabric "troop seats" along the airplane's starboard bulkhead, and Mac found a couple of seatbelt ends to clasp around his waist. Surveying the cargo area, it seemed large compared to the helicopter cabin interior he'd grown accustomed to. Also, it was darker inside, especially once the aft ramp was up.

Down the center aisle of the cargo floor, two neat rows of

55-gallon-drums contained JP-4 for the fuel cache at the FOL. Positioned horizontally, they left almost no leg room for Mac and his two helicopter mechanic traveling companions. The loadmaster lashed the drums to the floor by securing a pair of cargo tiedown straps lengthwise from the aft ramp to the floor just behind the forward bulkhead. Just as the loadmaster cinched the straps, tightly squeezing the rounded sides of the barrels, the powerful recip engines sputtered and coughed to life and a profusion of smoke filtered into the cabin.

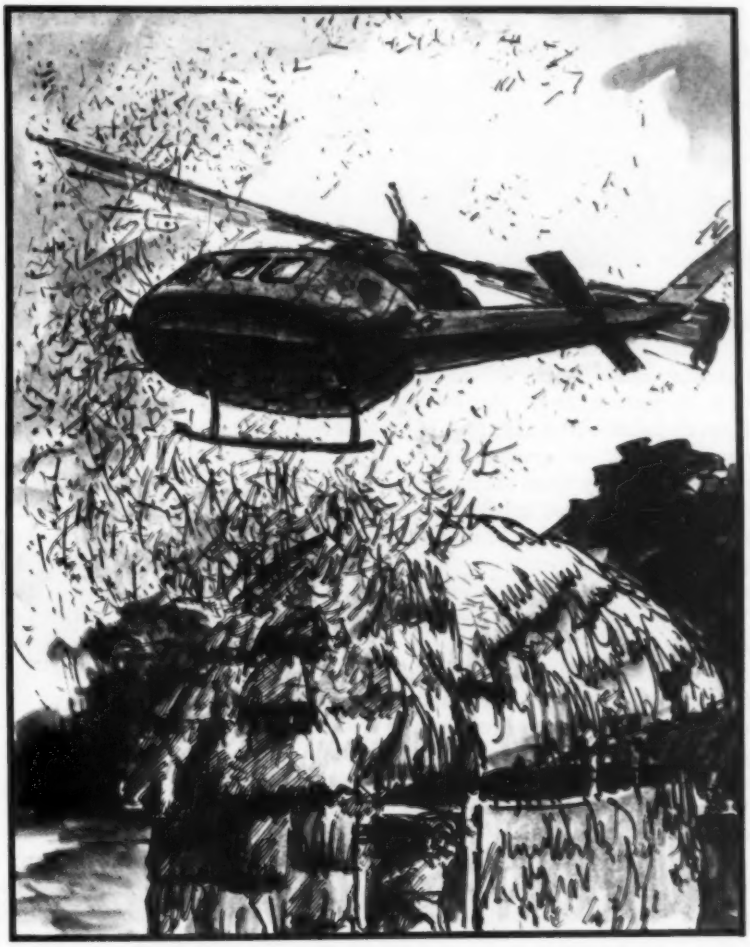
Taxi to the active runway elicited an interesting symphony of creaks and groans from the old aircraft as Mac found a comfortable seating position—knees drawn up to his chest and feet braced against the rim of the barrel in front of him. After lineup on the runway, the engines alternately roared as the pilots accomplished perfunctory magneto checks. Following a half-minute of relative quiet, the engines roared once again, and Mac braced for takeoff.

The old '123 strained against the brakes and, when they were released, the aircraft shuddered and *lurched* forward with an additional blast provided by the jets. Still braced in a seated position, Mac lost his footing as the barrel in front of him suddenly rolled a few feet towards the rear of the aircraft. He watched in awe as the rolling rows of heavy fuel drums were barely restrained at the clasp on the cargo ramp. The takeoff roll continued briefly until the loadmaster, mildly concerned, communicated the irregularity to the pilots.

When the pilots abruptly initiated their abort procedure, all hell *broke loose*—literally! Two unchocked rows of barrels were even less eager to come to a sudden stop than they had been to accelerate for the "full power prior to brake release" takeoff roll. Lieutenant MacKenzie kept his cool, naturally, as he observed the barrels again come rolling past his spot on the bench seat. He merely raised his legs and assumed the "hug your helmet bag" position in the space which his two enlisted traveling companions had been occupying—(they had released seat belts and were demonstrating their tag team gymnastics agility, clambering over one another towards overhead ventilation ducts). When those barrels crashed against the forward wall of the cabin, Mac could only close his eyes and pray.

His prayer was answered. Calm and tranquility followed the seeming avalanche of steel fuel containers. The cabin occupants exchanged expressions of relief and disbelief. After a cautious taxi back to parking, the embarrassed loadmaster worked feverishly to rearrange and resecure the cargo over plywood shoring—this time with the *flat sides down*!

Arrival in Tole was uneventful, and Mac immersed himself in the operation and all the details associated with loading cargo, handpumping fuel, and maintaining radio comm with mission aircraft. The pace of activity was hectic, and he could hardly wait his turn



to actually fly some sorties.

That chance finally arrived, but Mac really "blew it" on his first departure from the FOL. Heavily laden with extra fuel, his chopper's out of ground effect rotorwash nearly lifted the roof off a peasant's thatched hut "bohio." It was the hesitation, loitering that few extra seconds at 40 ft, which almost caused catastrophe. The "huge fan" effect of a heavy chopper can really cause light or unsecured objects to dance. (Fortunately, amends were easily made when Mac and the peasant's pretty teenage daughter posed for a photo beside the empty 55 gal. fuel drum donated to the bohio owner.)

Later, there was the close call with the slingload of empty pallets. Mac had begun flying the return leg to the FOL but, admonishing him for flying too slowly, his instructor assumed control. Though "the book" warns against high airspeeds with aerodynamic sling loads, the "experienced" instructor emphasized that, with such a light load, you need to approach the limit in order to discover where it is. Mac felt an uncomfortable oscillation and noted 70 knots indicated airspeed, immediately followed by 40 knots, and then accelerating again to 70 knots. He looked up to see the load of pallets swing up in front of the chin bubble as the pendulum effect continued with increasing momentum. Finally, Mac's pinkie finger found the proper little red "pickle" button on the cyclic stick (the IP called it the "chicken switch"). From 1,000 ft AGL, a flurry of wooden pallets fertilized the jungle terrain below. Fortunately, the only harm was to the crew's egos.

There were certainly some hairy situations on that deployment. The mission wasn't "life or death," but it could have easily become so. The pace of activity seemed to gather energy until all the players were just naturally carried along by it. Here was proof there can be danger in just "going with the flow."

* * * * * * * * * * *

The sun began to set over the bay as Captain Mac MacKenzie shook his limbs to escape the grip of deep reflection. Muttering to himself, he acknowledged, "Yes, I learned a lot about operational flying and safety back in those earlier days. Regrettably, some people who get such firsthand exposure don't always get to walk away with all their body parts intact, as only providence permitted me to do on so many occasions."

Writing notes to himself in the sand, Mac tried to consolidate the lessons from those three significant events of his first deployment. "Cargo or fuel—it always adds up to *weight* or, more accurately, *mass*. Once mass gets placed into motion, it's more likely to take direction from Newton's basic laws than obey frantic inputs from a pilot desperately squeezing the life out of a control stick or yoke. Therefore, the prudent crewmember must consider physical laws of nature in *advance* of getting his precious posterior into the proverbial crack. So, think ahead. Better yet, *plan ahead!* Anticipate the consequences of provoking Mother Nature, because the laws of physics are unchangeable, as well as unforgiving. Respect them—*never trifle with them*!"

To Err Is HUMAN

(Editor's Comments: The following mishaps were compiled in an article in *Cathay Pacific Airline's* magazine *Kai Talk*. Each could have ended with more serious consequences than they actually did, but more importantly, they didn't have to occur at *all*.)

Twin Engine Shutdown

Shortly after takeoff the B767 pilot detected a problem with one of the two engines. He then inadvertently shut down both engines. The airplane, with 195 passengers, dropped to *600 ft* AGL before the engines could be restarted. The plane landed at destination without further incident.

Birdstrike and Abort

The B747-200 started takeoff 40 tons below maximum. A large bird flew up and hit Number 3 engine. The first officer elected to abort 22 knots beyond V1. The airplane was brought to a stop, but all main gear tires deflated.

DC-10 Leaves Taxiway

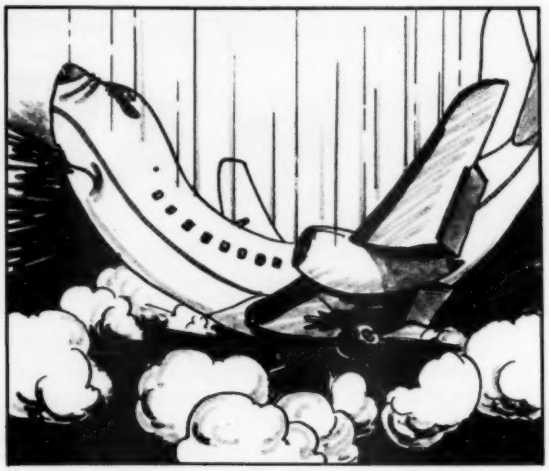
The DC-10 was taxied out at approximately 7 knots and turned around some parked aircraft. Due to bad lighting the captain misjudged the situation. NLG and right MLG sank into tarmac covering soft ground. Number 3 engine touched the ground and the engine, wing, and gear were severely damaged. Fuel spilled and passengers evacuated.

Incursion With Donkeys

A B-737-200 landing on an airfield in Western Samoa hit a line of donkeys crossing the runway at night. Half of one donkey stuck in the left engine and the gears doors were ripped off. Access to the runway was possible due to a large hole in the airport fence.

Pressurization Failure

During cruise at FL 350, just before starting descent, the cabin altitude warning horn blared and



a 1,000 ft/minute rate of climb was indicated despite a fully closed outflow valve.

The captain initiated a rapid descent while the FE, just returning from the restroom, was able to stabilize the cabin. The airplane then levelled off at the previously cleared altitude of FL 240. The passenger masks did not eject.

The FE had erroneously switched the air conditioning packs off.

B-737 Positive Touch

On most B-737s the nose gear must touch to get thrust reversers. However, on B-737-300s it's possible to reverse at a height of less than 10 ft due to unreliable squat switches. Based on old habits, the B-737 pilot pulled the reversers during the flare to get the reversers open on gear touch. Since he was flying the -300, he reversed in flight and touched down hard.

Slide Off Taxiway

Taxiing out to Runway 06R at Anchorage (in icy conditions), the B-747 overran the taxiway and the nose gear went downhill.

B-747 Leaves Taxiway

During taxi, the airplane missed the first turn, tried to avoid snowbanks, and rolled one main gear off the tarmac.

Another B-747 Leaves Taxiway

It was a zig-zagging taxi route in heavy snow and darkness. Markings were snow covered. Finally, without seeing any lights, the NLG and one main gear left the taxiway.

Subtle Incapacitation

The L-1011 captain left his seat 25 minutes after takeoff. He acted strangely and tried to interfere with the actions of the copilot, who flew the airplane back to departure airport unassisted. The captain was suffering from food poisoning.

Wrong Airport

The B-727 approached the airport visually. The crew determined they were too high and asked for a 360-degree turn. When the crew rolled out again and cleared some clouds they saw *an* airport ahead and landed on *a* Runway 21 instead of the planned Runway 17 on the correct airport. ILS was not available on either airport, and the VOR approach for the correct runway was not used. The adjacent airport is marked on the approach plate.

Hard Landing

During preflight on a DC-9, damage was detected on the right engine, the tailskid, and the APU doors.

Seven landings prior to this inspection, the airplane was flown unstabilized in a low speed, low power landing. It had touched down hard with 2.6 Gs simultaneously on the tail and main landing gear, tearing the APU loose and damaging the bulkhead.

Mistaken Airport Markings

The B-747 was cleared for takeoff on Runway 22R, with the captain flying the airplane. At 60 knots the running got rough, and at 80 knots heavy bumps were felt on the nose landing gear. Instrument reading became difficult and the takeoff aborted with two flat NLG tires. The pilot had mistakenly lined up the aircraft on a brilliant yellow line on the right edge of the runway, which he mistook at night as the runway centerline. It was the right edge line in front of the displaced threshold without centerline.

He initiated takeoff on the right runway lights, destroying 19 lights with the inside of the two nose gear tires. The right gear rolled on the runway shoulder which is wide enough for both body and wing gear.

Missing Gear

The tower controller observed no visible gear on a B-747 on final approach and told the pilot to go around at very low altitude. Apparently no final actions or checks were made, otherwise the gear warning horn would have sounded on selection of landing flaps.

Wrong Airport

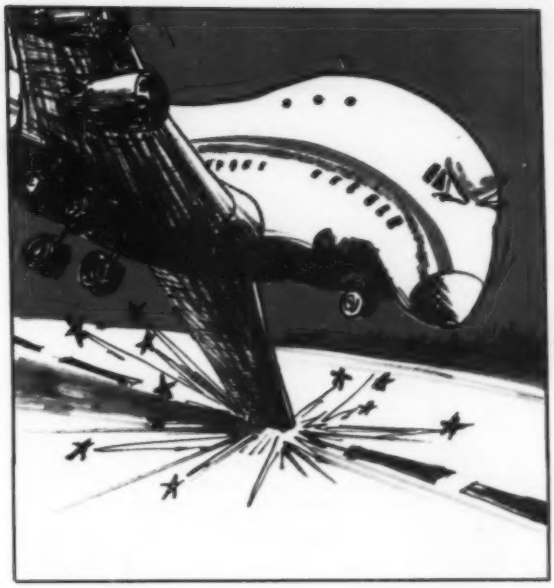
During the night approach to the airport of Eilat (Israel), which is situated on the beach, the crew flew visual and landed their B-747 four miles away on the 1,400-meter-long desert strip at nearby Akaba. The runways have a direction difference of only 10 degrees.

Airspeed Indication Failure

During takeoff roll both A310 pilots became aware indicated airspeed on both primary systems didn't correspond with the accelerated takeoff distance. The captain rotated the aircraft according to his visual impression and maintained a reasonable pitch attitude during climbout and cleanup (airspeed indication at liftoff approximately 110 knots, actual airspeed 200 knots).

During cruise, the IAS returned to a more stabilized value. The approach and landing were performed with standard pitch attitudes.

The reason for the faulty speed indication was found to be insects using the unprotected pitot tubes as a nesting site during the 10-hour ground time.



Rushed Approach

The captain was flying with a brand new copilot. They were in holding, waiting for weather to improve when the captain suddenly decided to make an approach. He ordered slats and flaps so rapidly that the copilot was unable to follow up. No callout was possible, the flight came in extremely unstabilized, touched the wingtip on the centerline and made a go around.

The captain had failed checks twice before. The last check captain, unwilling to take responsibility for dismissing the mishap captain, passed him on a checkride and released him for flight duty. He gave him the lowest grade and informed the fleet chief—"that man can't fly."

Chocks Inplace

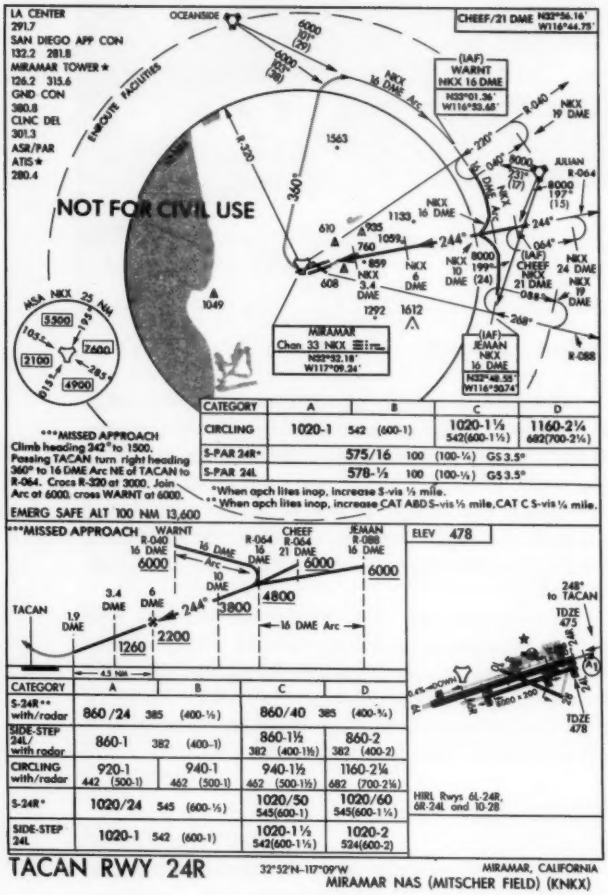
The DC-10 captain took the signal from the marshaller to mean chocks in place and, therefore, released the parking brake.

The crew suddenly became aware that the aircraft was moving. Immediate brake application brought the aircraft to a standstill. Actually, it had rolled several meters but no damage occurred.

A discussion with the marshaller showed the signal given, in his opinion, meant "keep the brakes on" which was definitely not interpreted that way by the pilots.

TMF Instrument Quiz

Show the Navy how it's done.


LA CENTER
291.7
SAN DIEGO APP CON
132.2 281.8
MIRAMAR TOWER ★
126.2 315.6
GND CON
380.8
CLNC DEL
301.3
ASR/PAR
ATIS ★
280.4
OCEANSIDE
CHEEF/21 DME N32°56.16' W116°44.75'
(IAF) WARNT NKX 16 DME N33°01.36' W116°53.65'
NOT FOR CIVIL USE
ENROUTE FACILITIES
MIRAMAR Chan 33 NKX N32°52.18' W117°09.24'
(IAF) JEMAN NKX 16 DME N32°48.55' W116°30.74'
(IAF) CHEEF NKX 21 DME
JULIAN R-064
R-320
R-040
R-088
MSA NKX 25 NM
3500
7600
2100
4900
***MISSED APPROACH
Climb heading 242° to 1500.
Passing TACAN turn right heading 360° to 16 DME Arc NE of TACAN to R-064. Cross R-320 at 3000. Join Arc at 6000, cross WARNT at 6000.
EMERG SAFE ALT 100 NM 13,600
CATEGORY | A | B | C | D
CIRCLING | 1020-1 542 (600-1) | | 1020-1½ 542(600-1½) | 1160-2¼ 682(700-2¼)
S-PAR 24R* | 575/16 100 (100-¼) GS 3.5° | | |
S-PAR 24L | 578-½ 100 (100-½) GS 3.5° | | |
*When apch lites inop, increase S-vis ½ mile.
**When apch lites inop, increase CAT A&B S-vis ½ mile, CAT C S-vis ¼ mile.
***MISSED APPROACH
WARNT R-040 16 DME 6000
16 DME Arc
CHEEF R-064 16 DME 21 DME 6000
JEMAN R-088 16 DME 6000
10 DME 4800
3800
TACAN
1.9 DME
3.4 DME
6 DME
244°
1260
2200
4.5 NM
16 DME Arc
ELEV 478
248° to TACAN
TDZE 475
TDZE 478
CATEGORY | A | B | C | D
S-24R** with/radar | 860 /24 385 (400-½) | | 860/40 385 (400-¾) |
SIDE-STEP 24L/ with radar | 860-1 382 (400-1) | | 860-1½ 382 (400-1½) | 860-2 382 (400-2)
CIRCLING with/radar | 920-1 442 (500-1) | 940-1 462 (500-1) | 940-1½ 462 (500-1½) | 1160-2¼ 682 (700-2¼)
S-24R* | 1020/24 545 (600-½) | | 1020/50 545(600-1) | 1020/60 545(600-1¼)
SIDE-STEP 24L | 1020-1 542 (600-1) | | 1020-1½ 542(600-1½) | 1020-2 524(600-2)
HIRL Rwys 6L-24R, 6R-24L and 10-28
TACAN RWY 24R
32°52'N-117°09'W
MIRAMAR, CALIFORNIA
MIRAMAR NAS (MITSCHER FIELD) (KNKX)

Okay matey, it's time to visit the Navy. We're off to sunny Southern California and Miramar Naval Air Station. You'll need an approach plate for the TACAN RWY 24R approach (handily provided by *TMF)* and a copy of AFM 51-37, (provided by you). So sharpen your instrument and get to work. Good luck!

1. The coordinates for CHEEF IAF are:

   a. N32°52.18' W117°09.24'
   b. N32°48.55' W116°50.74'
   c. N32°56.16' W116°44.75'
   d. N33°01.36' W116°53.65'

2. A 101-degree course from _____ for 29 nm will take you to _____ IAF.

   a. Julian/CHEEF
   b. Oceanside/WARNT
   c. Julian/JEMAN
   d. Oceanside/CHEEF

3. A 103-degree course from _____ for 38 nm will take you to _____ IAF.

   a. Oceanside/WARNT
   b. Julian/CHEEF
   c. Miramar/CHEEF
   d. Oceanside/CHEEF

4. You're past the FAF for a straight-in TACAN with radar approach. Weather is reported at 400 ft and 1 mile for your CAT C airplane. Tower notifies you a rattlesnake crawled into the circuit box and shorted out the approach lights. You should:

   a. do a missed approach immediately.
   b. level off and proceed to the missed approach point and perform a missed approach.
   c. not worry, be happy, and continue approach.
   d. request a PAR pickup to complete the approach.

5. During missed approach, you must cross WARNT at:

a. 1,500 feet.
b. 6,000 feet.
c. 3,000 feet.
d. 7,600 feet.

6. When the reported ceiling is at least 500 ft above the minimum vectoring altitude and visibility is at least 3 miles, you can expect to be vectored to intercept the final approach course:

a. at least 1 mile from the FAF at a maximum intercept angle of 20 degrees.
b. at least 3 miles from the FAF at a maximum intercept angle of 30 degrees.
c. at least 4 miles from the FAF at a maximum intercept angle of 40 degrees.
d. either a or b.
e. either b or c.

7. Prior to final, you're cleared for the TACAN RWY 24R approach, side-step to RWY 24L. To comply with this clearance, you should:

a. not begin the side-step maneuver prior to the FAF nor until the sidestep runway is in sight.
b. displace your airplane one dot left on the CDI to line up with the landing runway.
c. maintain side-step MDA until reaching the point at which a normal descent to land on the side-step runway can be started.
d. a & b.
e. a & c.

ARE YOU A QUIZZICAL PERSON?

If you are, we at *TMF* would welcome your contribution to the *TMF* Instrument Quiz. We're always looking for new (or not so new) topics for the Quiz. So, if you're an expert, or just deeply interested in a particular aspect of instrument flying, work up a Quiz and send it in. We'll give you a byline to impress your boss, co-workers, sweetheart, wife, kids, mother, etc. Don't pass up this chance at instant fame!

ANSWERS/REFERENCE

1. c/IAP, upper right hand corner.
2. b/IAP, AFM 51-37, para. 7-6b (1)(e).
3. d/IAP, same reference as #2.
4. c/IAP, Note** When apch. lites inop, increase CAT ABD S-vis ½ mile, CAT C S-vis ¼ mile.
5. b/IAP, Missed Approach Instructions.
6. d/AFM 51-37, page 100, para. 10-7a.
7. c/AFM 51-37, page 125, para. 14-7.
8. b/AFM 51-37, page 75. One solution—180 KIAS GS = 3NM/min - 2= 1. On the 16 DME arc 1 NM equals approximately 4 degrees.
9. d/AFM 51-37, page 110, para. 12-4d(1)NOTE.
10. c/AFM 51-37, page 112, para. 13-1a(1)(a).

8. While proceeding southeast on the NKX 16 DME arc, what is a good "wag" lead radial to intercept the 244-degree course inbound with a 180 KIAS groundspeed, assuming no wind?

a. 062 degrees.
b. 060 degrees.
c. 052 degrees.
d. 068 degrees.

9. You may descend from the 6,000-ft altitude restriction on the 16 nm arc when:

a. you're within one-half needle deviation on the CDI.
b. cleared by ATC.
c. the CDI breaks lock from the fully deflected position.
d. you reach the appropriate lead point and have begun a turn to final approach segment.

10. The final approach for the TACAN RWY 24R IAP at NAS Miramar begins at _____ and ends at _____.

a. NKX 064°/6 DME, TACAN
b. NKX 064°/10 DME, NKX 064°/3.4 DME
c. NKX 064°/6 DME, NKX 064°/1.9 DME
d. NKX 064°/6 DME, NKX 064°/3.4 DME

Travis AFB . . . A Class Act!

About Travis AFB

Original plans for construction of Travis AFB occurred shortly after the U.S. entered World War II. The installation was intended to be used as a medium bomber base. While construction was underway on support facilities, the runway was used for takeoff and landing practice. Prevailing winds approximated those of carrier operations, so naval aircraft also used the runways for a brief period, practicing landings and takeoffs on the painted outline of a carrier flight deck.

Air Transport Command (ATC) officially activated the base as Fairfield-Suisun Army Air Base on 17 May 1943. The primary World War II mission was readying newly built bombers and transports for flight to Pacific war zones.

When Military Air Transport Service was established 1 June 1948, ATC, Naval Air Transport Service, and other resources at Fairfield-Suisun Air Force Base were consolidated. On 1 May 1949, with the change in U.S. defense posture to one of massive retaliation, the base was reassigned to Strategic Air Command and assumed a new mission—major long-range reconnaissance and intercontinental bombing. The base was named in honor of Brig. Gen. Robert F. Travis, killed in a B-29 crash on a local runway 5 August 1950. Following implementation of SAC's dispersal policy, MATS resumed command of Travis in July 1958.

During the Vietnam era, Travis was the principal aerial port for troops and supplies destined for Southeast Asia. More than one million passengers and 200,000 tons of cargo and mail per year moved through Travis during 1966-1970. Twenty-Second Air Force, headquartered at Travis, was the controlling MAC Numbered Air Force for Operation Homecoming, airlift of returning former POWs from Hanoi to the United States.

Three different times Travis received the first operationally assigned aircraft of a new model: the first C-141A delivered to the Air Force in 1965, the first C-5A in 1970, and the first C-141B in 1980.

Since 1974, 60 MAW has supported a unique airlift responsibility with Operation Deep Freeze. That mission supports the U.S. Antarctic Research Program and involves annual resupply and transport of scientists, support people, cargo, and equipment from Christchurch, New Zealand, to McMurdo Station, Antarctica. Using C-141s, 60 MAW members affectionately refer to those missions as "going to the ice."

An additional unique mission at Travis involves support for the Intermediate Range Nuclear Forces (INF) Treaty. Travis is the west coast point of entry for Soviet inspection teams. Since Soviet inspectors must enter and exit the U.S. through Travis (or Dulles Airport on the east coast), the base is responsible for housing and feeding them during layover periods.

Having the largest and busiest aerial port in the Military Airlift Command, Travis is known as "The Gateway to the Pacific" and is home to approximately 8,000 military and 3,400 civilian workers. Global strategic airlift is the primary mission of the host unit, 60 MAW—the largest wing in MAC. The wing has four operational squadrons. The 7 and 86 MAS fly C-141B Starlifters, while the 22 and 75 MAS fly C-5A and C-5B Galaxies. The majority of the Wing's flying is in the Pacific and Indian Ocean areas from Alaska to Antarctica. Major tenant units assigned to Travis include HQ 22 AF, David Grant USAF Medical Center, the 349th Military Airlift Wing (Associate) of the Air Force Reserve, and the 1901st Communications Group.

By Maj. Stephens F. McCauley
Associate Editor

Good morning Travis Air Force Base! TMF is finally on your doorstep, ready to acquaint our readers with the secrets of your success.

Situated near the Napa valley of northern California, an overhead view of Travis makes it appear as an oasis in the desert. The place is geographically laid back against the hills of the San Francisco Bay Area, and the people of Travis are definitely a class act. As I soon discovered during my brief visit, it's really the people at Travis who earn and maintain the reputation of the "Travis Team."

Armed and determined with nothing more than camera and curiosity, I set out to discover the hidden charms of this mecca of strategic airlift. First impression—Travis is BIG! Lots of ramp area, long parallel runways, and sprawling acres of buildings and hangars, new and old, impress the newcomer with the base's size and complexity. Although climate control machines known as "swamp coolers" adorn rooftops throughout the base, need for their use must be infrequent. Even on a "hot" 105-degree August day there, the steady and dry cooling breezes never seemed to rest. Based upon my brief exposure, I would imagine the only complaint that can be made about the weather is that it's so good, it must get *boring!*

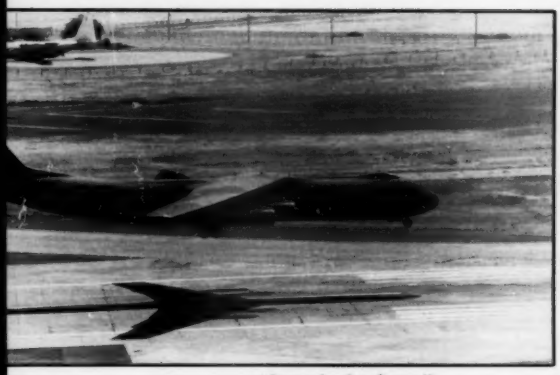
I wanted to discover how such a large wing functions on a daily basis, and I got a glimpse of that during a "morning stand-up" briefing chaired by Col. Walter O. McCants, wing vice commander (standing in for wing commander, Col. John C. Tait, who was flying an airlift mission). A "Tell It Like It Is" briefing slide elicited all news—the good and the bad—from the staff. Travis commanders stay informed and involved with their people to maintain safe operations in the air and on the ground.

I had the opportunity to talk with Colonel McCants about safety's role in management and leadership of such a large wing. He responded, "Safety has to always be the overriding concern of all our folks as they go about accomplishing the wing's mission. Outstanding departure reliability, aircraft generation, and cargo movement statistics mean very little if we've injured someone or damaged some equipment in the process. We have a large base, large numbers of daily aircraft departures, a big ramp, and lots of traffic. In short, we have lots of opportunity for accidents. So each of us has to 'think' safety. We have to develop a 'mindset' towards safety that ensures it's a major part of our decision-making process." Addressing unique challenges at Travis, the colonel spoke of the built-in complexities of having two aircraft types in one wing. "It does lead to larger support organizations. We have a 1400-person Field Maintenance Squadron—that creates a challenge. Having this mix of aircraft sometimes complicates resource allocation, but it does add flexibility in mission accomplishment." Concluding, Colonel McCants said, "Our greatest asset is our high quality, high caliber people. Our wing logo is 'The Travis Team,' which really identifies the spirit of cooperation we have here."

My hosts at Travis were the fine folks of the 60 MAW Safety Office, headed by a candid and outspoken Chief of Safety, Maj. George C. Harper. The inscription on a plaque in his office offers food for thought: "A superior pilot is best defined as one who uses his superior judgment to avoid situations requiring the use of his superior skill."

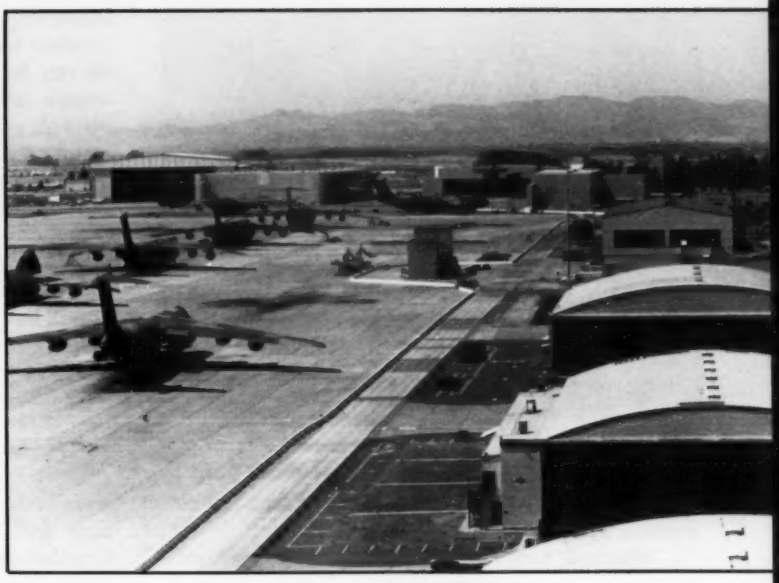
Talking about safety programs at Travis, Major Harper commented, "Our biggest enemy is *complacency*. We can go for a long time without a mishap, and that's when we need to be extra alert. This wing has had major mishaps in the past which provided painful but valuable flight safety lessons—landing short, a wingtip, a gear up—incidents which proved that mishap prevention must be an ongoing campaign. In the last two years, our wing has done a superb job of emphasizing safety and maintaining an excellent record, but we have to remember those incidents and constantly emphasize that accidents can and do happen—*an effective safety program requires constant care and feeding*. Our best weapon against complacency is awareness."

Capt. Steven R. Baker, a 60 MAW Flight Safety Officer, described one of the wing flight safety success stories: "We feel very proud of our midair collision avoidance program. This is a high density traffic area, so we make quarterly visits to the fixed base operators out at the local airports. There's absolutely no substitute for face-to-face contact, and they've all been very supportive about getting the word out to local private pilots."



"Gear checks down."

"Drive thru" service.



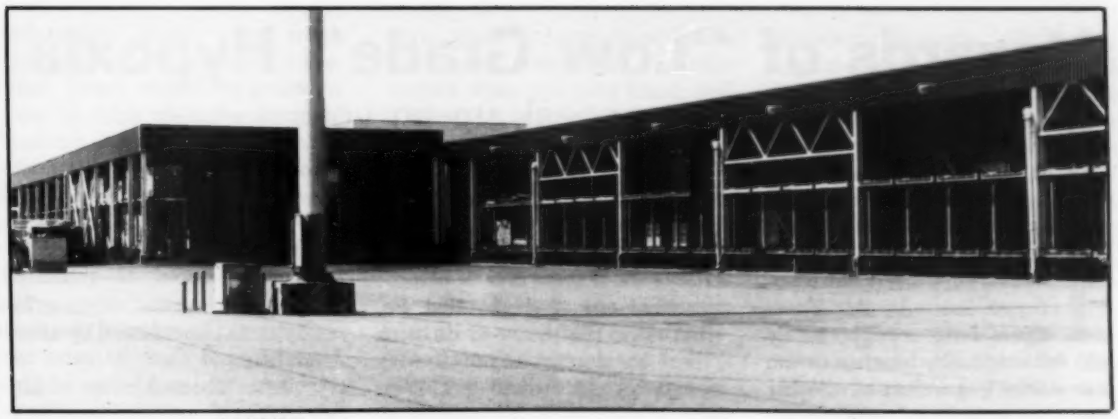
Travis is BIG!

I made a low pass through the flying squadrons and they were typically buzzing with aircrew activity. Each squadron has its own special approach to getting the flight safety word to crews. However, one aspect of their programs is consistent: *every* Monday, one of the four squadrons holds a flight safety meeting at 1330 hours. That makes it possible for a wing crewmember to attend at least one meeting per month, regardless of the flying schedule. Furthermore, either the Wing CC or CV, and DO or ADO, attend those meetings, setting a positive example and providing additional motivation for crewmember participation.

Units take note: One Travis squadron places the latest copy of *TMF* in every mission trip kit. (Great idea!) A new flight safety officer for his squadron, Lt. Dave Carter, volunteered for his additional duty safety job because, "Being here in the squadron safety office keeps me closer to the real flying operation, even when I'm not out on a mission." Good point, Dave. (If this sounds like a thinly disguised recruiting pitch for the flight safety business, it is!) Finally, one of the squadrons added an interesting twist to the old "Lessons Learned" flight safety bulletin board—they changed the label to "Screw-up of the Month" board. (It's neither a contest, nor a dare!)

Since Travis has a reputation for moving such tremendous amounts of cargo, my next stop was 60 MAW/TR. That organization, of course, is responsible for a variety of functions including air freight, fleet service, ATOC, and passenger terminal (as well as civilian airport pax terminals in Oakland, San Francisco, and St. Louis). The aerial port itself has more than 237,000 sq ft of storage area inside its main building, and another 40,000 sq ft in a building designated only for hazardous cargo. They move more than 260,000 tons of cargo per year, averaging 20,000 individual shipments per month. I met with the commander, Col. Earl H. Heal, to learn more about aerial port operations. The colonel began by pointing out that his unit prides itself on the number of missions launched on time and their low delay rate. "In fact," he emphasized, "we recently inspected and moved, with no advance notification, 27 loads to Honduras in less than a 20-hour period. We also have prepositioned equipment belonging to Fort Ord's Seventh Infantry Division (Light). It consists of 20 C-141 load equivalents, pre-packaged for immediate worldwide deployment, with less than 18-hour tasking for movement. It's all 'pre-chalked,' and gets inspected and swapped out every three weeks." Colonel Heal also mentioned, "Although regulations require only random reweigh of unit mobility cargo, we reweigh all palletized channel mission cargo and almost all rolling stock as well." Certainly a reassuring point for aircrews!

Touring the extensive Travis maintenance complex, I spoke with MSgt. Lou Rall, Industrial Safety NCOIC. His office works very closely with wing safety to maintain mishap trend analysis records and develop cost data for damaged aircraft.



Aerial Port.

Air Force Heritage.

Part of the "Travis Team."

They also track and report aircraft birdstrikes, since aircrews often don't realize they've had one until maintenance post-flight finds the damage. Also the wing FOD program manager, Sergeant Rall noted that Travis hasn't had a reportable engine FOD mishap since May of 1985—an impressive record!

One highlight of my stay was a personal tour of Travis Air Museum provided by SMSgt. Warren Bailey, Chief of Aircraft Restoration. Located in the old base commissary, the museum offers some fascinating glimpses of Air Force heritage, with static displays conveniently located near the Travis Passenger Terminal, providing easy access for transients just "passing through." They use volunteers as hosts and even open some of the aircraft on weekends to provide visitors a "hands-on" nostalgic experience.

Closing out my visit, I made a final stop to again thank the hospitable folks of the 60 MAW Safety Office. Then, proceeding to the pax terminal, I recalled a "safety axiom" I'd recently seen in an airport lobby: "Remember, before you fly, make sure you're on board." In a more serious vein, the people at Travis most certainly are "on board" with their approach to *safe mission accomplishment.*

Hazards of "Low Grade" Hypoxia

. . . can sneak up on you.

By Capt. James D. Hettler
Aerospace Physiologist/Instructor Navigator
Little Rock AFB, Arkansas

If you listen to Air Force flyers long enough, surely you will eventually hear one or two war stories (regardless of whether you want to or not). I certainly am no exception. My story is a classic "there we were" in our Herky Bird at 10,000 ft with the enemy all around us and little we could do but wait to land at our destination—Yokota Air Base, Japan.

Our mission was to escort OV-10s which had just finished participating in the annual TEAM SPIRIT exercise in Korea. Due to their limited navigational capabilities, we were to guide them over the vast Pacific Ocean. This trip was a dream come true when you consider the destination was none other than Hickam AFB, Hawaii. The mission was billed as eight fun-filled nights with stops at some of the most historic islands in the Pacific—Marcus, Wake, and Midway, just to name a few; not to mention a few days to enjoy the sun and beaches of Hawaii.

Getting to Hawaii was uneventful and came off as fragged. The trip so far had been everything we imagined it would be. But like all good things, there does come an end. Although we would enjoy one more night on Wake Island, I, being the navigator, was not looking forward to the 9-hour flight from Wake to Yokota. As most aircrew members can attest, coming home from a "good deal" always has post mission letdown. You generally won't suffer get-home-itis from one of these trips. So, what does this have to do with "there we were at 10,000 ft with the enemy all around us?" You have to ask, "What was this C-130 doing at 10,000 ft in the first place?"

How we came to be at 10,000 ft is quite interesting, and I'll wager that many an airlifter has had to fly under similar circumstances.

Our takeoff out of Wake, albeit reluctant, was as advertised—not a cloud in the sky as far as the eye could see. After reaching our assigned altitude, and heading in the right direction, everyone pretty well settled in for the long trip back. Four hours out, however, the aircraft developed a pressurization leak. The middle overhead escape hatch seal gave out and the aircraft was unable to maintain pressurization. The engineer, using his All-American ingenuity, tried to put wet towels around the hatch, hoping to create a good seal. Meanwhile, the crew was dealing with ever-expanding body gases while donning our 0_2 equipment to ward off possible hypoxia. Knowing that we could not stay at that high altitude (due to passengers on board) we coordinated with Hickam for a descent to 10,000 feet. Although all of us had been through physiological training at the altitude chamber, most of us forgot what the instructor had to say about flights in the 10,000 ft regime for prolonged periods of time. Regardless, we had no choice in the matter. We were about to encounter the most common form of hypoxia experienced by aircrew members.

After about 2 hours of flight at 10,000, I noticed I was feeling lethargic, not to mention the splitting headache beginning to develop. Although it didn't click at the time, I was suffering effects from lowered oxygen pressure at altitude. In other words, "low grade" hypoxia. Looking back on it, I had all the classic symptoms. Unfortunately, we had two and a half hours to go before we would touch down on terra firma. Upon discussing my discomfort with the other crew members who were equally afflicted, we accurately diagnosed the problem and started to be as vigilant as we could, knowing that a full-blown case of hypoxia could be lethal. Fortunately, we were able to make it home without incident. Our homecoming, however, wasn't as jubilant as it might have been. Upon return to our loved ones, excessive fatigue settled in. I have never forgotten that incident, nor the lesson I learned about hypoxia at what is considered an "acceptable altitude."

Since becoming a rated physiology instructor, I've learned more about the problem of hypoxia and the flying environment. All of us learned about the dangers and insidiousness of hypoxia. You probably still remember the poor guy who volunteered to be the demonstrator on your first chamber ride and how he fumbled around, lost his coordination and

eventually went into what appeared to be a catatonic state. Most flyers expect hypoxia to occur at high altitudes (hypoxic hypoxia) and seldom consider the effects of "low grade" hypoxia that can be experienced from sea level to 10,000 feet.

Hypoxia is a state of oxygen deficiency in blood, cells, and tissue, sufficient to cause impairment of function. This problem can arise through four different means, or types, of hypoxia; hypoxic, hypemic, stagnant, and histotoxic.

Even though hypoxia is subjective in nature and we all react differently to it, it can manifest itself at lower altitudes by feelings of fatigue, headache, nausea, and even dizziness. For example, at 10,000 ft (unpressurized) at night, hypoxia will affect your vision by as much as 25 percent due to decreased oxygen tension. If you happen to be a cigarette smoker, your night vision can be affected by as much as 45 percent because of carbon monoxide in your system plus reduced oxygen tension. In this case, you have a combination of hypoxic (altitude) and hypemic hypoxia.

Hypemic hypoxia is a condition existing when the oxygen-carrying capacity of the blood is reduced. This could result from being in a smoke and fumes environment or simply giving blood. Blood's bonding agent for oxygen is hemoglobin. Unfortunately, it has 250 times greater affinity for carbon monoxide than oxygen. So, you can imagine why the smoke and fumes environment is so potentially dangerous, if not downright lethal. But you can also experience hypemic hypoxia as a result of blood loss. Here, you are reducing the oxygen-carrying capacity of the blood just by loss of volume. That's why flyers are discouraged from giving blood. It takes about 72 hours to replenish fluid loss from the vascular system when you give blood, and it takes, on average, 6-8 weeks to build up your supply of red blood cells to their former level. Again, the cigarette smoker is at a distinct disadvantage. At sea level, the cigarette smoker's body reacts as if it were at an altitude of 7,000 ft, just due to carbon monoxide saturation in the body. When that individual is at 7,000 ft (unpressurized), his body reacts as it were at 13,000 feet. Therefore you would expect that person to go hypoxic before the non-smoker.

. . . lost his coordination and eventually went into what appeared to be a catatonic state.

Although we don't experience the high Gs of the fighter world, stagnant hypoxia can still be a player if sitting for long periods of time. It's not that we don't have enough oxygen in the blood stream, it's a condition that exists when we sit for a long time and blood starts to pool in the lower extremities due to lack of exercise. Essentially, the heart isn't working as hard and, as it slows down, the blood is able to stay in localized parts of the body longer than it ordinarily would.

Other factors could be tight fitting clothes and temperature extremes. Cold temperatures lend themselves to stagnant hypoxia as a result of the body's self preservation mechanism. Wanting to preserve your life, your blood will gravitate to vital organs, neglecting your fingers and toes.

Another form of hypoxia which manifests itself even when there is sufficient oxygen is histotoxic hypoxia. Histotoxic hypoxia is the result of cells and tissues being poisoned to the point they don't take on the oxygen being carried throughout the vascular system. Alcohol is one of the most common factors, but cyanide can also be a player. When cyanide is present in the body, cells and tissues die and therefore can't use the readily available oxygen. So, how does one come into contact with cyanide? You don't need to look any further than the wires, insulation, or foam cushions which, when burning, produce cyanotic fumes. These, of course, are found in great abundance on airplanes. Plus, don't forget about some of the hazardous cargo airlifters are tasked to carry around the globe.

Ultimately, it is important for flyers to remember that hypoxic hypoxia (altitude induced due to decreased pressure of oxygen) is always a real threat. Generally, it will affect most of us when we have to fly in the unpressurized environment of 10,000 ft due to pressurization problems. Remember, blood oxygen saturation rate at sea level is 98 percent. No problem! But as the pressure decreases during ascent, at 10,000 ft blood oxygen saturation rate reduces to 87 percent. This is considered to be the critical cutoff point. Even though we can survive in that environment, after a couple of hours, our performance starts to decrease. Headache, lightheadedness, fatigue, and lethargy now become players. Along with this comes reduced attention span. This is one of the greatest threats to the aircrew.

So remember, the next time you find yourself flying unpressurized at 10,000 ft, if you can, start sucking in the good old oxygen and try to beat the problem of low grade hypoxia.

Flying-Hour Milestones

15,000

8 MAS
Lt. Col. Victor S. Fukai

10,000

8 MAS
MSgt. Donald G. McIntosh

7,500

HQ MAC/DP
Col. Charles C. Barnhill, Jr.

75 MAS
Maj. Joseph R. Brown

86 MAS
Maj. Stanley C. Widau

23 AF
CMSgt. Donald V. Sutterfield
MSgt. Robert D. McCorkle

17 TAS
CMSgt. Douglas C. Grant
SMSgt. George E. Whittington
MSgt. Thomas R. Wallace

14 MAS
SMSgt. Joseph W. Mitchell

143 TAG
CMSgt. George A. Pratt
SMSgt. Chester C. Zuromski

62 MAW/CC
Col. Edwin E. Tenoso

8 MAS
Lt. Col. Dennis H. Dausel
Lt. Col. Paul R. Martin
Maj. Charles D. Greene
CMSgt. Leonard J. Davis
MSgt. Stephen P. Drew
MSgt. Harold A. Harris, Jr.

315 MAW
Maj. Michael L. Smith

5,000

HQ MAC/XO
Lt. Col. John H. Gossner
Maj. Brian K. Jones

172 TAG
Lt. Col. William J. Lutz

23 AF
Maj. Gregg N. Clymer
TSgt. Maynard J. Guelich
TSgt. Robert J. DeStefano
SSgt. Stuart C. North

14 MAS
MSgt. Franklin J. White
MSgt. Irvin W. Roser, Jr.
MSgt. David E. Redmond

Det 1, 616 MAG
Capt. Wiliam L. Chu

8 MAS
Lt. Col. James W. Morrell
MSgt. Mark E. Dallas
MSgt. Larry L. Galbavy
MSgt. Raymond A. Sutlief
SSgt. David L. Fisher

75 MAS
Lt. Col. Keith D. Malone
Maj. Gary K. Garren
Maj. John W. Hammond
Capt. Donald T. Wyllie

314 TAW
Lt. Col. Dan J. Marchioni

57 MAS
Maj. Dennis P. Williams
MSgt. Lloyd L. Cooper
MSgt. Nelson E. Kinsey, III.
MSgt. Howard A. Schmidt

36 TAS
SSgt. Jeffrey A. Davis

2,500

374 TAW/CC
Col. Robert Y. Foerster

316 TAG
Lt. Col. Bernard H. Burgess
Lt. Col. William R. Caldwell
Lt. Col. Brian F. Muskus
Maj. Richard C. Holloman
Maj. Stephan Kernstock
Maj. Gordon K. Lemaire

345 TAS
Lt. Col. John W. Brooks/CC
Lt. Col. Walter T. Crawford
Lt. Col. Terry H. Messer
Lt. Col. Jackie L. Oehme
Maj. Gregory A. Bricker
Maj. Frederick Cressman
Maj. Charles R. Davis
Maj. William J. Dougherty
Maj. Christopher A. Kelly
Maj. James A. O'Dell
Maj. Joel R. Ross
Maj. Bruce C. Withers
Capt. Zachary E. Bailey
Capt. Karl L. Elders
Capt. James S. Maple
Capt. Paul A. McDaniel
Capt. Benjamin H. Troemel, Jr.
Capt. Joseph P. Widmayer
SMSgt. Jerry W. Harris
SMSgt. Chester B. Ruddell
MSgt. Michael E. Bruce
Msgt. Phillip Combs
MSgt. Jerry L. McFarling
MSgt. Earl Richard, Jr.
TSgt. Ted A. Caniete
TSgt. James E. Comer
TSgt. Theodore Condo, Jr.
TSgt. John F. Conlee
TSgt. Stephen M. Gambert
TSgt. William A. Gilbreath
TSgt. John F. Jackson
TSgt. Lary S. Whipple
TSgt. Mark A. Winkler
SSgt. Joel A. Braaten
SSgt. Daniel M. Chargualaf
SSgt. Curtis A. Flagel
SSgt. Edward L. Jackymak
SSgt. Carl N. Jones
SSgt. James D. Keown
SSgt. Robert B. Pickering
SSgt. Randal K. Riddell
SSgt. Angel E. Rosado, Jr.
SSgt. Samuel E. Stamen, III.
Sgt. James D. Crockett
Sgt. Michael E. Mummert

1403 MAS
Maj. Gaylord K. Carlton
Capt. Terry D. Stice

Det 1, 1403 MAS
Maj. William B. Carroll/CC
Capt. Keith E. Morgan

172 TAG
Maj. Robert A. Cain
Maj. Robert M. Moore
Capt. Maurice T. Brock
Capt. Robert A. Orwig
MSgt. Robert E. Evans
MSgt. George M. Gandy
TSgt. Michael L. Brown

1467 FCS
Capt. Roger C. Bailey
MSgt. Gary Krebsbach

11 AAS
Maj. Todd M. Howe
Maj. Noel G. Johnson
Capt. Mark J. Blakley
Capt. Joseph R. Collins
Capt. Mark F. Ramsay

23 AF
Lt. Col. Thomas A. Samples
Lt. Col. Larry L. Gates
Lt. Col. Philip E. Glenn
Lt. Col. Enrique A. Oti, II.
Lt. Col. John T. Parker
Maj. Jeffery L. Cruse
Maj. Dennis D. Rice
Maj. Gregg N. Clymer
Maj. William H. Cole
Maj. Harry C. Debruhl, Jr.
Maj. Kenneth C. Halbert
Capt. Alan L. Bedsole
Capt. Robert G. Brudbridge
Capt. Randy A. Dockendorf
Capt. Paul R. Harmon
Capt. Brian F. Johnson
Capt. Jack A. McKeithen
Capt. Scott D. Sucher
Capt. Douglas D. Trogstad
CMSgt. Larry L. Austin
CMSgt. Robert E. Snook
SMSgt. Dennis M. Plymale
SMSgt. William E. Hebdon
MSgt. Ira W. Allen, Jr.
MSgt. Michael J. Engles
MSgt. Fred J. Frasier
MSgt. Eric L. Gregory
MSgt. Nicholas Harris
MSgt. Donald E. Lister, Jr.
MSgt. Samuel D. Moore
MSgt. William J. Napoleon
MSgt. George R. Pollock
MSgt. Tony M. Posey
MSgt. John T. Richardson
MSgt. Steve A. Schneider
MSgt. Robert F. Tess
MSgt. Thomas R. Vadnais
TSgt. Alvin Bass
TSgt. Guy A. Bennett
TSgt. Daniel M. Braddock
TSgt. Jerry R. Dunphy
TSgt. Herbert J. Duran
TSgt. Samuel L. Garrett
TSgt. Mark E. Gottfried
TSgt. Michael E. Hyers
TSgt. William D. Kirby
TSgt. Michael H. Kropski
TSgt. Jan E. Phillips
TSgt. Richard D. Spurlock
SSgt. Matthew L. Armistead
SSgt. Jerry D. Barnes
SSgt. Brady J. Bobo
SSgt. Gregory D. Lenberg
SSgt. Shaun V. Scott
SSgt. Randall B. Wilson
Sgt. Michael O. Cole
Sgt. Richard K. Wolfe
Sgt. Douglas E. Priest

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Maj. Michael E. Lahart
Maj. Richard H. Moore
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Lt. Col. John A. MacLennan
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Maj. Kenneth F. Boday
Maj. Leonard C. Bordsol
Maj. Raymond F. Bourgoin
Maj. James E. Chagnon
Maj. Carl M. Champagne
Maj. Richard G. Driscoll
Maj. Dennis H. Esposito
Maj. Arthur G. Frechette
Maj. Edward M. Guild, Jr.
Maj. Thomas J. Haynes
Maj. Martin V. Joyce, Jr.
Maj. Richard P. Lemieux, Jr.
Maj. James F. Naff, Jr.
Maj. Vincent J. Petrarca
Maj. John G. Rallis
Maj. John S. Salfeety
Capt. Gregory G. Baltmiskis
Capt. Lawrence P. Gallogly
Capt. Mark E. Jannitto
Capt. Bruce R. Macomber
Capt. Wayne J. Pierson
Capt. Gary A. Tougas
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SMSgt. Clarence N. Merry
MSgt. Kevin J. Canfield
MSgt. Stephen Parente
MSgt. Robert J. Wilkinson
TSgt. Donald J. Krasowski
TSgt. Larry C., Muniec
TSgt. Theodore R. Sirmans
SSgt. David E. Peck

8 MAS
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Lt. Col. Paul Galli, Jr.
Lt. Col. Michael Gurley
Lt. Col. Robert C. Rogers
Maj. Robert J. Barlow
Maj. Stephen R. Brown
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Capt. Robert A. Bermann
Capt. Vincent K. Crow
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Capt. Murry G. Peterman
Capt. Kip L. Self
Capt. Edward Schauberger
Capt. Victor N. Voss
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SMSgt. Joseph B. McCarthy
SMSgt. David A. Turner
MSgt. David L. Ford
MSgt. Steve E. Gregg
MSgt. James Haselhun
MSgt. Ted R. Horton
MSgt. Larry D. McKimm
MSgt. Thomas H. Mitchell
MSgt. Gaylen B. Mulloy
MSgt. Robert W. Savary
MSgt. Stephen R. Spotts
MSgt. Ronald H. Thompson
TSgt. Rickey L. Beavers
TSgt. Richard L. Callaham
TSgt. Wagner Defreitas
TSgt. Jeffrey W. Dow
TSgt. Joseph M. Ellwood
TSgt. Mark L. Gelinas
TSgt. Louis A. Gillespie, Jr.
TSgt. Michael V. Keesler
TSgt. Keith J. Messner
TSgt. W. A. B. Nicolls
TSgt. Clifford R. Samuels, III.
TSgt. William R. Stewart
TSgt. Randal L. Smith
TSgt. George E. Veselka
TSgt. Donald J. Vinson
TSgt. Thomas D. Wyman
SSgt. Benito Arizmendez, Jr.
SSgt. Darrell J. Boyle
SSgt. Donald R. Buescher
SSgt. Mitchell R. Capalbo
SSgt. Jason P. Collins
SSgt. Donald L. Davenport
SSgt. Garland L. Deel
SSgt. Mark L. Lindsay
SSgt. Juan A. Lopez
SSgt. Alan L. Mann
SSgt. Ronald D. Parks
SSgt. Philip E. Roy
SSgt. Lorraine M. Swain
SSgt. Ted R. Thomas
SSgt. Terry L. Thomas
SSgt. Donald E. Tomlin
SSgt. Gary J. Wallesen
Sgt. Ted K. Beck
Sgt. Jerry L. Johnson
Sgt. Randy Lewis
Sgt. William Syhlman, III.
Sgt. Troy L. Wolford

57 MAS
Capt. David J. Kratzer
MSgt. Michael D. Riley

9 AES
CMSgt. Melvin Horton
SSgt. Harold R. Campbell

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Maj. Mark A. Bathurst
Maj. David C. Brown
Maj. Walter T. Clark
Maj. Richard J. Crofton
Maj. Robert F. Cunningham
Maj. Marion R. Floyd
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Maj. John G. Grones
Maj. Steven E. Hansel
Maj. Aubrey G. Harvey
Maj. Arlie G. Hayes
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Maj. Robert A. Pleischl
Maj. Danny G. Samples
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SSgt. Paul W. Carter
SSgt. Titus D. Johnson
SSgt. Bernadette C. Phelps

1,000

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Maj. Huel S. Haynes
Maj. Steven C. Marcussen
Maj. Michael F. Pianert
Maj. John B. Shafer
Maj. Paul N. Smith
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Capt. John R. Atkins
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Capt. John S. Brasis
Capt. John P. Cain
Capt. John S. Campbell
Capt. William L. Campbell
Capt. Robert F. Cooper
Capt. Scott A. DiNapoli
Capt. Joseph J. Falsone
Capt. John H. Fitzgerald
Capt. Michael D. Flynn
Capt. Eric B. Greenblatt
Capt. James S. Hamblin
Capt. Joseph W. Knebel
Capt. Edward C. Lewis
Capt. Mark E. Millican
Capt. William H. Milton
Capt. William A. Mouzo
Capt. John D. Nelson
Capt. Kevin C. Nesbitt
Capt. David R. Newell
Capt. Richard D. Newton
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Capt. Mark L. Sims
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Capt. Robert W. Storey
Capt. Brandon J. Thompson
Capt. Douglas L. Tracy
Capt. Henry V. VonJonanne
Capt. Robert M. Walker
Capt. Thomas A. Williams
Capt. William A. Zaal
1st Lt. Michael A. Hodges
MSgt. James M. Ballanger
MSgt. Joseph V. Kelly
TSgt. Robert A. Dixon
TSgt. Larry V. Hoxit
TSgt. Phillip D. Keesler
TSgt. Wade A. Lehman
TSgt. Randal R. Loar
TSgt. Walter G. McIntyre
TSgt. George R. Miller, III.
TSgt. Norman J. Redenshek
TSgt. Stanley K. Sanders
TSgt. Ward J. Warren
SSgt. Kerry M. Bates
SSgt. Anthony L. Gaier
SSgt. Joseph E. Hardin
SSgt. Patrick J. Hogan
SSgt. Daniel L. Inch
SSgt. Jeffery L. Lewis
SSgt. Michael E. Linnbaum
SSgt. David A. Smith
SSgt. Laurent J. St. Pierce
SSgt. John M. Vargo
SSgt. James D. Williams
Sgt. William B. Feller
Sgt. Michael A. Starnes

Ranks and units are those at time of award. ★

MEDEVAC DRAMA

Life-saving crew coordination.

By Lt. Col. Arthur Irwin
53 MAS/CC
Norton AFB, CA

Editor's Comments: The following account of an emergency medevac mission doesn't contain any examples of derring-do, harrowing mechanical problems, or impending doom. But it does contain several examples of crewmembers working together to complete a tough, highly critical lifesaving mission.

We were on a PEN 0809 mission—an overseas trainer. As the instructor pilot, I had two aircraft commander upgrade candidates. Two instructor flight engineers had two second engineers, one fresh out of Altus, and the other well on the way to first engineer upgrade. One of the instructor engineers was requalifying after an extensive TDY. The instructor loadmaster had a student on his recommendation ride before his upgrade check. We also had a basic loadmaster to fulfill the two loadmaster requirement for the mission, and a noncurrent loadmaster regaining currency after an extended DNIF. Add finally to this my first sergeant, along for an orientation flight. We were a crew of twelve and every man had plenty to do as a result of circumstances which evolved on what was supposed to be our last day out in the system.

The crew alerted, augmented, at 0530Z on 4 September 1988, to allow us the crew duty day to get home from Lajes, through Dover, to Norton. When we arrived at command post, we were told of an emergency airevac to Rhein-Main. A young Navy female had been a passenger involved in a car accident late the night before. The driver, drunk, ran off the road and hit a bridge railing constructed of three inch diameter galvanized pipe supported by concrete posts. One of the 25-ft sections of pipe was driven through the front end of the car, into her upper leg, out her back, through the seat, and out the rear of the car. The young woman suffered a broken leg, a shattered pelvis, and internal bleeding. Rescue workers cut the pipe at the points where it entered and exited her body and moved her to the air base hospital. Unable to perform the surgery required to remove the pipe due to limited staff and facilities at Lajes, the medical team at the hospital prepared her for emergency medical evacuation to the hospital at Wiesbaden, Germany, via a flight to Rhein-Main.

We told command post we would be ready for a 0700Z departure and proceeded to plan and file two flight plans. One would get us to Rhein-Main and the other to Dover if, for some reason, the airevac didn't go. We gulped down the Portuguese version of an early bird special at the Lajes passenger terminal, and waited the traditional 20 minutes for a crew bus to take us to the airplane.

When we got to the airplane, the four loadmasters had the aircraft reconfigured and the ramp down awaiting our passenger's arrival. We got permission for an opposite direction departure, saving taxi time, and ran all the checklists we could to be as ready as possible when the patient arrived. We were airborne 11 minutes after they rolled her onto the airplane.

The patient's condition was stable and conscious when we left Lajes at 0820Z. Accompanying her was a Navy master chief petty officer escort and medical team consisting of one Navy lieutenant commander flight surgeon, and two Air Force Reservists—a second lieutenant flight nurse and a senior master sergeant medical technician. The total flight time was planned to be 4 hours and 30 minutes, but we never made our 1250Z block time at Rhein-Main.

About an hour and a half after takeoff, the patient's condition worsened. Her pulse rate was high and she was losing a lot of blood. The flight nurse asked how much longer the flight would be and expressed concern about limited blood supplies. When informed that we had over 2.5 hours to go, she said she only had about an hour and a half supply of blood at the patient's current consumption rate, and asked if there was any intermediate stop we could make to pick up more blood.

Like an "aircrew coordination training" exercise in the simulator, we suddenly had a bunch of questions, and no time for one person to find all the answers. What was the closest field to our present position? Was it capable of accepting a C-141? Could we get the diplomatic clearances required to land? Could we get the blood needed at that field? If we landed and the patient's condition worsened, were there facilities available to perform the required surgery? How much time would we buy by diverting? Could we do all the coordination and accomplish the diversion before the blood ran out? Was there any way we could avoid a diversion? How were we going to keep the patient alive until we could get her to a hospital?

We divided the workload, and every person on board had his or her hands full with a job to do. One pilot was flying the airplane and talking to French ATC controllers; giving them an unofficial heads-up that we had a patient whose condition was worsening and that a request for diversion and landing in France might be forthcoming. Another pilot was researching runway and approach information on airfields along our route of flight, and loading the FSAS with

coordinates to determine the closest available fields and possible arrival times. Our third pilot was coordinating communications with various command and control agencies, and trying to get advice on the best course of action.

The flight engineers were busy responding to various options under consideration. Approach and landing data was computed for at least three locations. They were also computing fuel consumption for the fastest acceptable cruise speed to each location and determining power settings required. Additionally, one of the engineers had O Positive blood (universal donor) and was considering donating blood.

The loadmasters and first sergeant were all assisting the medical crew. As the patient's condition worsened, her ability to accept blood and vital fluids diminished. Three loadmasters and the first sergeant kept squeezing plastic pouches of blood and saline solution to force feed the patient intravenously. We were all very intent on keeping this young woman alive and getting her to a place with proper facilities.

We notified the MAC Command Center of our situation and requested suitable diversion fields in France. They quickly referred us to the 2d Aeromedical Evacuation Squadron at Rhein-Main, the primary controlling agency for our mission. The unit responsible for all medical evacuations in the European theater, and the correct agency to determine suitability of medical facilities in France and the appropriateness of an emergency diversion. They could also do a major portion of the coordination with medical agencies on the ground to prepare for our reception in event of a diversion.

After a conversation between the Navy flight surgeon and experts at 2 AES, they concluded the patient wouldn't make it to Rhein-Main. One pilot's research and another's informal conversation with French controllers determined Paris Orly was the best diversion airport. The medical crew didn't have the equipment to take blood donations or perform transfusions from any of our crewmembers and the patient's condition now required more than just blood. Her condition called for immediate surgery. The French and 2 AES agreed Paris had the best facilities, and Orly was the best field along our route for a C-141.

Meanwhile, American command and control agencies we were dealing with were concerned the French wouldn't allow us to land without prior diplomatic clearance, but once the decision to divert was made and we declared a medical emergency, a spirit of international cooperation became immediately apparent and was a beauty to behold. We were cleared direct to Orly, with descent at our discretion. When we informed the controllers we had no approach plates for the airport, which was reporting a solid overcast at 600 ft, a Belgian airliner volunteered to join us on a discrete radio frequency and proceeded to read us all the pertinent information we needed to fly the two most likely approaches into Orly. The French opened the most conveniently aligned runway for our use only. In response to our request for blood and an ambulance to take our patient to the closest capable hospital, we were told a hospital had been notified, an operating room was ready, and a team of surgeons standing by. Further, a helicopter with a rescue team on board would meet us at the end of the runway after landing rollout.

Everyone's efforts made everything fall into place. All we had to do was get our patient on the ground as quickly as possible. Suffice to say we didn't exceed any airplane operating limits, but we did press hard knowing the young woman's life depended on our expediency.

We touched down at 1153Z and had the doors open when we cleared the runway. The engines were shut down and the ramp lowered as soon as we stopped. Our patient was rolled out the back as the helicopter landed behind us. As we talked via phone patch to 2 AES and the 322d Airlift Division Command Post, the French medical team began to stabilize the patient. After thirty minutes, the situation was sufficiently under control to place the young woman on the helicopter— on her way to awaiting French surgeons.

Once she was gone, we were all rather quiet. After some deliberation, we decided, with 322d's concurrence, to take our Reservists and their equipment back to Lajes rather than proceeding to Rhein-Main. Their equipment was all of that type they had on the island, and we didn't want to deprive Lajes of vital medical capability. As we refueled, a few remarks were heard about the fact we could see the Eiffel Tower from our parking spot, but the majority of our discussion centered around speculation as to whether she would make it.

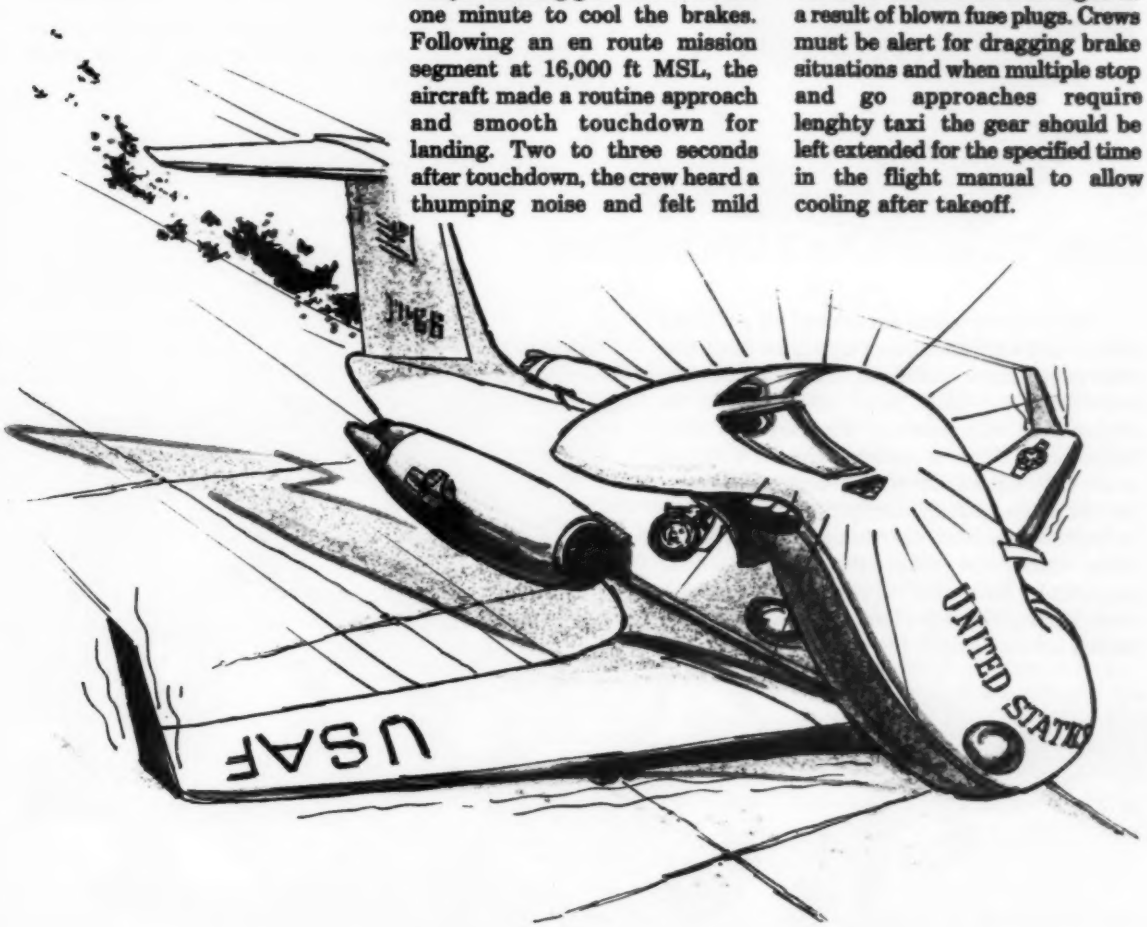
When we got to Lajes, we found out she had made it through surgery but was still in very bad shape. We took on more fuel and pressed on to Dover, where we all went to bed, very tired from our 21-hour crew day. We were exhausted physically and emotionally. We knew we had done something exceptional and were all rather proud, and we all would have given anything to know the ultimate outcome of our efforts.

(The Commander, U.S. Forces Azores, credited Lt. Col. Irwin and crew with saving the young woman's life.) ★

QUICKSTOPPERS

WHERE THE RUBBER MEETS THE RUNWAY

Upon touchdown, the C-20 crew noticed a slight deceleration which felt similar to a momentary application of wheel brakes. Clear of the runway, the flight mechanic deplaned to check the brakes. They felt warm, but not abnormally so. After only 8 minutes on the ground, the aircraft was airborne once again. Though not required, the crew delayed landing gear retraction for one minute to cool the brakes. Following an en route mission segment at 16,000 ft MSL, the aircraft made a routine approach and smooth touchdown for landing. Two to three seconds after touchdown, the crew heard a thumping noise and felt mild vibration which they attributed to a rough runway. Although the pilot used only reverse thrust to stop the aircraft, tower advised they were leaving pieces of rubber on the runway. After a ground roll of approximately 3,200 ft, they exited the runway at the midfield taxiway and deplaned the mechanic. He noted both left main tires were destroyed. Apparently, the tires had deflated in flight as a result of blown fuse plugs. Crews must be alert for dragging brake situations and when multiple stop and go approaches require lenghty taxi the gear should be left extended for the specified time in the flight manual to allow cooling after takeoff.



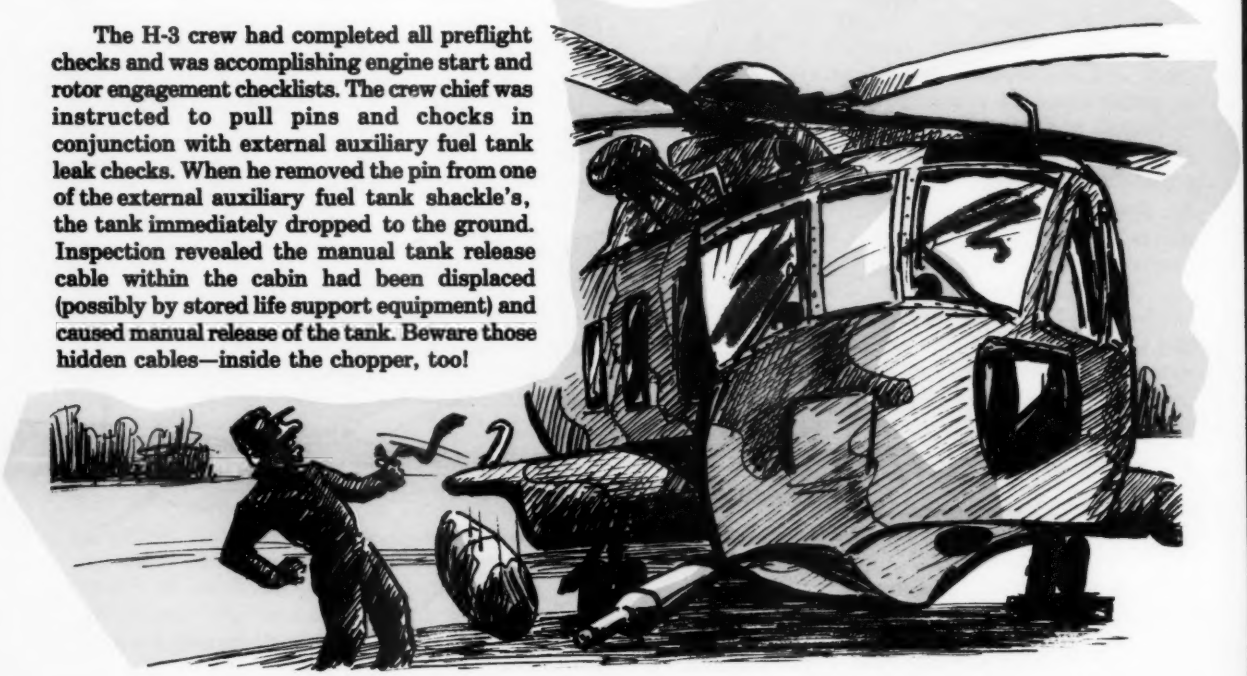
QUICKSTOPPERS

DON'T LET THEM SPOIL YOUR DAY

Final approach speed was 144 knots— touchdown occurred at 130 knots. The Starlifter had 5,500 ft of runway remaining as the pilot commanded thrust reverser and spoiler deployment. Although there was no spoiler asymmetry indication, spoilers and thrust reversers failed to deploy. With 3,000 ft remaining, the crew performed an emergency go-around. Upon subsequent landing, spoilers functioned normally. However, the crew failed to note the malfunction in the AF Form 781 as required by recent message emphasis on documentation of spoiler difficulties. Scorecard: "9.0" for the emergency go-around, but only "6.0" for documentation. Remember, the job's not complete 'til the paperwork's done.

DON'T DROP THAT DROP TANK!

The H-3 crew had completed all preflight checks and was accomplishing engine start and rotor engagement checklists. The crew chief was instructed to pull pins and chocks in conjunction with external auxiliary fuel tank leak checks. When he removed the pin from one of the external auxiliary fuel tank shackle's, the tank immediately dropped to the ground. Inspection revealed the manual tank release cable within the cabin had been displaced (possibly by stored life support equipment) and caused manual release of the tank. Beware those hidden cables—inside the chopper, too!



I DIDN'T KNOW IT WOULD GROW *THAT* MUCH!

The Starlifter was taxied to the ramp at an unfamiliar civil airport. With small general aviation airplanes to his left, the pilot taxied along the ramp's right side in preparation for a 180-degree turn. Obstacles to the airplane's right were a building 51 ft and a tree 21 ft from the ramp edge. Although the aircraft commander saw both obstacles, his major concern was the building. Tire tracks showed the airplane taxied parallel to the building prior to the 180-degree turn.

The marshaller stated there appeared to be "adequate clearance" prior to the turn, and he rechecked clearance between the right wing and tree before moving left to check taxi clearance. Positioned in the right window, the scanner and copilot felt they had sufficient clearance from the tree. They concentrated on the left, watching the marshaller running to keep up with the turning aircraft.

After the turn and engine shutdown, the marshaller informed the scanner of the contact with the tree.

Well, let's see here—T.O. C-141B-1, Figure 2-4, shows wingtip growth of 2 feet, 6 inches with the nose gear deflected 60 degrees. A Dash One Caution also states: "Outboard wingtip on a sweptwing aircraft 'grows' in turns. Deplane scanner to act as wing walker when clearance is questionable."

When in doubt, get out!

WE'LL GIVE YOU ONE OF THESE, MAYBE ...

You may be the one who receives one of three fine desk sets!

Or you may be the one who receives one of nine handsome plaques—presented by a "big shot" yet! YOU'LL NEVER KNOW UNLESS YOU TRY IT!

The Holidays are over. It's probably snowing, freezing, sleeting, or at least raining, wherever your are (yes, it rains in Florida and California), so what else is there to do? Enter the 1989 MAC Flight Safety Writing Contest, of course. Just compose your own flight safety story in almost any format you please—poetry, prose, philosophy, fact, or fiction, and enter by following the rules below.

THE RULES

The 1989 MAC Flight Safety Writing Contest is conducted according to MACR 900-3 and these rules. Entries must be original, unpublished, *contain an aviation safety/mishap prevention message,* and be postmarked no later than 31 March 1989. Stories must be between 1,000 and 3,000 words long (approximately 6 to 14 double-spaced typed pages). Poetry should average 75 to 100 lines. Manuscripts must be typed, double-spaced, and submitted in two copies. Identify entries by title only and attach a cover sheet indicating author's name, address, duty phone, unit and home address. Please include a brief autobiography.

The contest is open to all. Entries qualifying under the above rules earn their author a complimentary one-year subscription to *TMF.* However, desk sets and plaques may be awarded only to military members and civilian employees of the Department of the Air Force and Air Reserve Components. Other entries may be selected for Honorable Mention in a special category.

Winning entries will be published in *TMF.* Submit to:

MAC Flight Safety Writing Contest
HQ MAC/IGFE
Scott AFB, Illinois 62225-5101

After Deadlines

WANTED. Rated Major for assignment to HQ MAC staff as an editor for *The MAC Flyer*. Looking for creativity and desire to further flight safety goals by "spreading the word" through the favorite magazine of airlifters worldwide. For more information on this unique assignment, write to: Supervising Editor, HQ MAC/IGFE, Scott AFB, Illinois, 62225-5101, or call AV 576-3534/5542.

"VOLANT FLIPPER" A Charleston AFB C-141 crew and a Little Rock AFB C-130 crew recently assisted the U.S. Navy with a very special, and unusual, mission. They transported six U.S. Navy dolphins (actually assigned to the U.S. Navy?) on a round trip journey from Mayport NAS Fla., to Key West NAS Fla. The mission was a test to determine how well dolphins could be transported in C-130 and C-141 aircraft. Since dolphins are sensitive to temperature and pressure changes, cabin pressure was kept at or near sea level, as were aircraft to minimize stress on the mammals.

TYPHOON RUBY RELIEF. When Typhoon Ruby hit the Philippines on 25 October 1988, the 31st Aerospace Rescue and Recovery Squadron at Clark AB sprang into action with their HH-3 "Jolly Green Giants" to pluck flood-stranded victims from rooftops and trees. The unit was credited with a total of 27 saves. In the aftermath of the natural disaster, the unit later distributed 1,300 pounds of rice and other food items to storm victims in isolated areas.

***TMF* AT PREVAC!** That's the abbreviation for the annual "prevencion de accidentes" conference for Inter-American sharing of safety initiatives and mishap investigation methods amongst participating Air Forces. A traditional reunion which boasts over 25 years of continuous and productive interchange, the PREVAC scheduled for 1988 was nearly cancelled--until the Uruguayan Air Force saved the day by organizing its own safety committee meeting into an international event. There was scarcely a week's advance notice for the U.S. prior to the 8-11 Nov meeting, and HQ AFISC generously invited *The MAC Flyer* to journey southward and participate--representing the USAF. We sent Maj. Steve McCauley (coincidentally, Spanish fluent) to make a presentation on human factors in mishaps. The briefing was very well received, and *TMF* wishes to thank the most gracious Uruguayan hosts (and AFISC) for providing this unique opportunity.

U.S. Government Printing Office: 1989—654-015/2

TOUCH N GO

"Touch n' Go" courtesy of "The Heaven" (7 MAS).